Welcome to this Public Meeting

GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

- Please note that everyone is entering the meeting with their microphones muted.
- Please **keep your microphones muted** except when you are speaking. This will help us minimize background noise and feedback.
- Please take a moment to **open the Participants list and rename yourself** to show your full name and affiliation, so we have that for our records. You should see a “Rename” option next to your name (or click on “More” to find this option).
- **This meeting is being recorded** to document any questions or comments received during our time together.
- To make a comment or ask a question, please either:
  - Indicate you would like to make a comment using the Chat feature.
  - In the “Reactions” menu, select the “raise hand” option. The host will call on you to ask your question or make your comment.

2019 Triennial Review Public Meeting

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Water Quality Standards Coordinator

02/17/2021

GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

Meeting Agenda
Feb. 17, 2021

- Review of Control of Water Pollution and Surface-Water Use Law
- Review of federal requirement for Triennial Review
- 1/20/2021 EPA approval of 2016 Triennial Review
- Items being considered for 2019 Triennial Review
- Triennial Review timeline
- How to submit comments

Control of Water Pollution and Surface-Water Use
O.C.G.A § 12-5-21. Declaration of policy; legislative intent

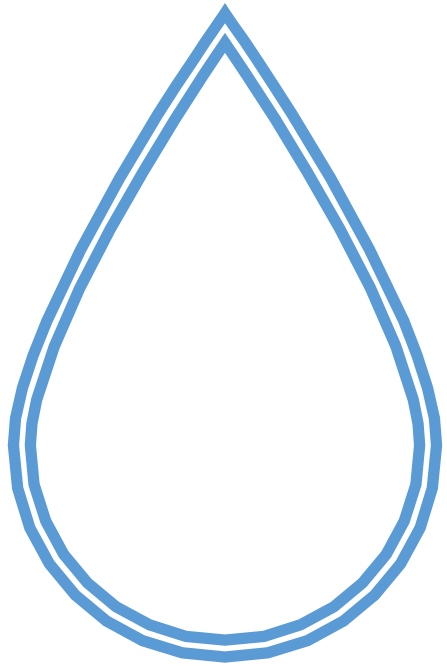
(a) It is declared… “that the water resources of the state shall be utilized prudently for the maximum benefit of the people, in order to restore and maintain a reasonable degree of purity in the waters of the state and an adequate supply of such waters, and to require where necessary reasonable usage of the waters of the state and reasonable treatment of sewage, industrial wastes, and other wastes prior to their discharge into such waters…”

Review and Revision of Water Quality Standards

- **40 CFR § 131.20 State review and revision of water quality standards.**
- **(a)** ***State review.*** The State shall from time to time, but at least once every 3 years, hold public hearings for the purpose of reviewing applicable water quality standards adopted pursuant to §§ 131.10 through 131.15 and Federally promulgated water quality standards and, as appropriate, modifying and adopting standards.
- **(b)** ***Public participation.*** The State shall hold one or more public hearings for the purpose of reviewing water quality standards as well as when revising water quality standards, in accordance with provisions of State law and EPA's public participation regulation (40 CFR part 25). The proposed water quality standards revision and supporting analyses shall be made available to the public prior to the hearing.

EPA Approval of Items from 2016 Triennial Review

- 12/6/2018: EPD submitted completed 2016 Triennial Review package to EPA
- 1/20/2021: EPA approved a portion of the 2016 revisions, including:
  - Antidegradation rule and definition of practicable alternatives
  - Paragraph allowing Compliance Schedules
  - Add pH to the definition of Natural Conditions
  - Clarify estuarine waters definition
  - Adopt EPA recommended Cadmium criteria
  - Revise use designation of 13-mile segment of “Chattahoochee River from Snake Creek to Yellow Dirt Creek” to “Recreation”
- EPA did not address:
  - Secondary contact recreation bacteria criteria
  - Lakes Oconee and Sinclair water quality criteria
  - 2018 Narrative Criteria revisions submitted separately from the Triennial Review Package



Items Being Considered for 2019 Triennial Review

Recommended by EPA after 2019 kickoff hearing

- 2009 EPA Acrolein Aquatic Life Criteria
- 2012 EPA Carbaryl Aquatic Life Criteria

Based on EPA recommendations

- 2015 EPA Human Health Ambient Water Quality Criteria Updates
- 2016 EPA Selenium Criteria
- 2018 EPA Aluminum Aquatic Life Criteria
- 2019 EPA Recommended Criteria or Swimming Advisories for Cyanotoxins

Items Being Considered for 2019 Triennial Review

Other items under consideration

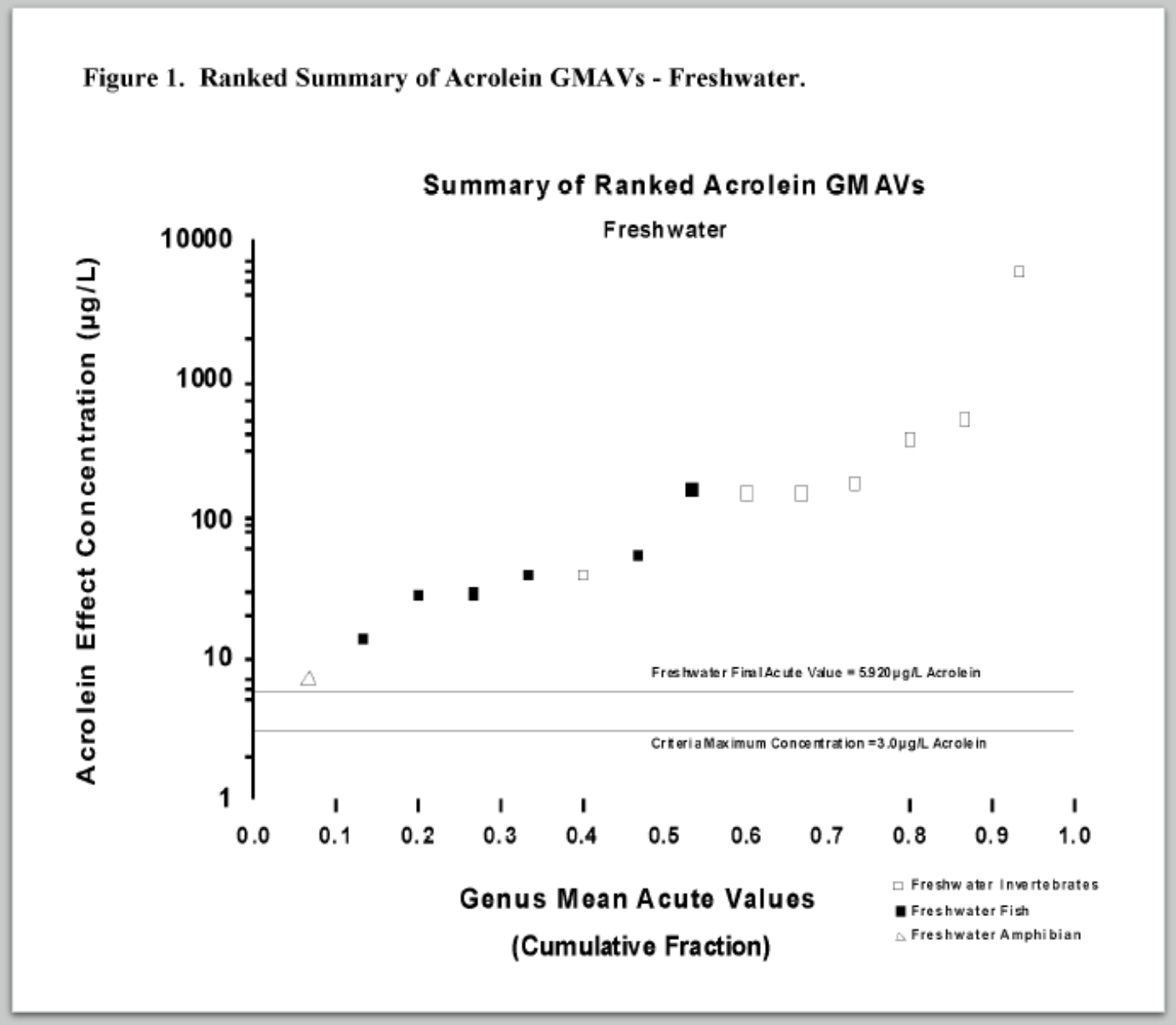
- Define primary and secondary recreation
- Update Bacteria Criteria for Fishing and Drinking Water (secondary recreational uses)
- Update Lake Oconee and Sinclair Criteria
- Revise Designated Uses
- Include Use of Water Effects Ratio and Biotic Ligand Model for Aquatic Life Criteria
- Replace “use classifications” and “legitimate uses” with “designated uses”

Acrolein

- Biocide for aquatic weed control.
- EPA released National Recommended Criteria in 2009 for the protection of aquatic organisms from short- or long-term effects.
- Variety of species were tested including fish, amphibians, and invertebrates.
- Criteria set to protect the most sensitive species tested.

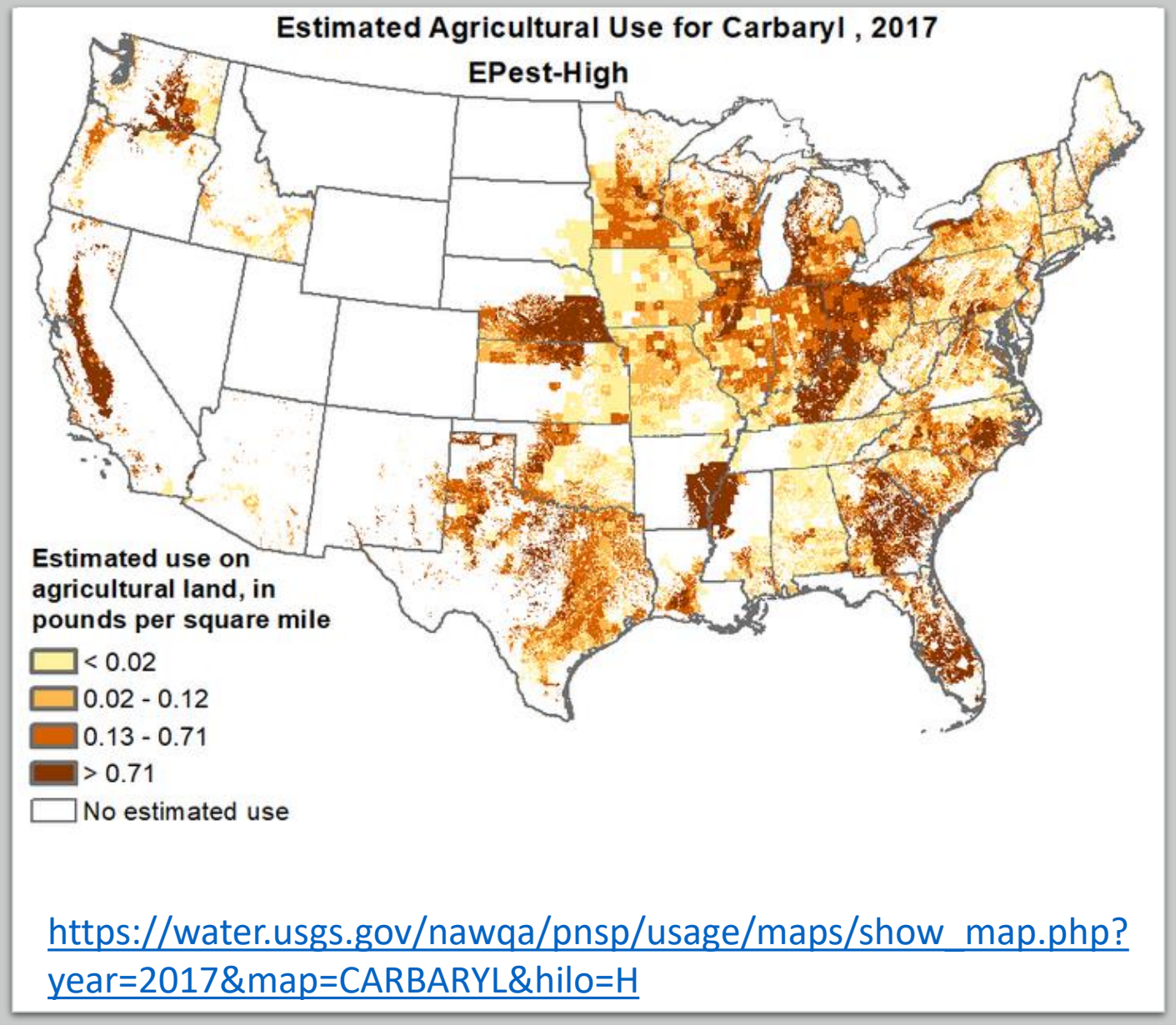
Acrolein

- Rule section 391-3-6-.03 (5)(e)(iii)
- Propose adopting EPA recommendation of **3 µg/L** for acute and chronic protection in freshwater only.
- Most sensitive species tested was the African clawed frog.
- Saltwater acute and chronic values not recommended due to lack of sufficiently broad dataset.



Carbaryl

- Insecticide used in agriculture and non-crop (home) uses.
- Sold under the brand name “Sevin.”
- EPA released National Recommended Criteria in 2012 for the protection of aquatic organisms from short- or long-term effects.
- 3rd most commonly used conventional pesticide in home/garden use in 2005 & 2007.
- Agricultural crops with major uses include: hay, apples, pecans, grapes, oranges, soy, and corn.



https://water.usgs.gov/nawqa/pnsp/usage/maps/show_map.php?year=2017&map=CARBARYL&hilo=H

Carbaryl

- Rule section 391-3-6-.03 (5)(e)(iii)
- Propose adopting EPA recommendation of **2.1 µg/L** for acute and chronic protection in freshwater only, and **1.6 µg/L** for estuarine waters.
- Most sensitive freshwater species tested were varieties of stoneflies.
- Most sensitive estuarine species tested was the mysid (opossum shrimp).

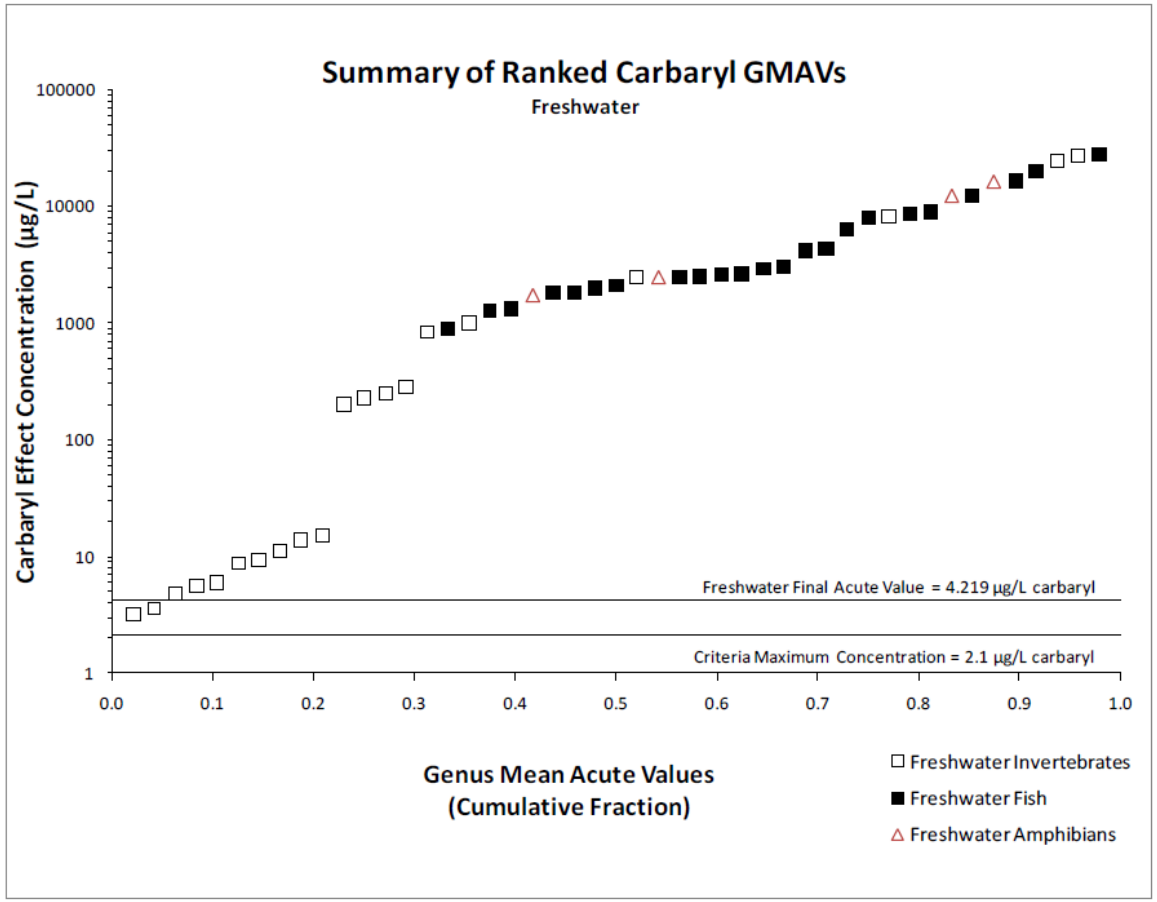


Table 1. Summary of Aquatic Life Criteria for Carbaryl

	Acute	Chronic
Freshwater	2.1 µg/L	2.1 µg/L
Estuarine/marine	1.6 µg/L	N/A

N/A – not available, unable to calculate estuarine/marine chronic criterion

Human Health Criteria

- EPA finalized updates to the ambient water quality criteria for the protection of human health in 2015.
- Reflected the latest scientific information and implementation of existing EPA policies found in Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health (2000).
- Revised criteria for 94 chemicals.

$$AWQC = RfD \cdot RSC \cdot \left(\frac{BW}{DI + \sum_{i=2}^{4} (FI_i \cdot BAF_i)} \right)$$

Exposure

RSC = Relative Source Contribution (%, to account for other sources of exposure).
BW = Human Body Weight (70 kg for average adult).
DI = Drinking Water Intake (2 L/day for average adult).
FI = Fish Intake (kg/day).

Bioaccumulation

BAF = Bioaccumulation Factor (L/kg).

Human Health Criteria

- Changes to Calculation Assumptions:
  - Updated toxicology - Reference doses (RfDs) and cancer potency slopes
  - Uses Bio Accumulation Factors instead of Bio Concentration Factors
  - Updated default values
    - Adult body weight increased from 70 kg to 80 kg
    - Adult drinking water consumption rate increased from 2.0 L/person/day to 2.4 L/person/day
    - Adult fish consumption rate increased from 17.5 g/person/day to 22 g/person/day
  - Uses Relative Source Contributions
- EPD looking at Georgia Specific data.
- EPA used a deterministic approach, EPD looking at a probabilistic approach.
- Will not be adopting Human Health Criteria at this time.
- EPD will continue work to develop appropriate criteria using the probabilistic approach.

Selenium

- EPA updated freshwater selenium criteria in 2016
- Selenium Criteria 391-3-6-.03(5)(e)(ii)(9)

Criteria Elements	Current Criteria	2016 Recommended Criteria			
	Water Column	Water Column	Intermittent Exposure	Egg/Ovary (dry Weight)	Fish (dry Weight)
Magnitude	5.0 µg/L	Still Water 1.5 µg/L Flowing Water 3.1 µg/L	$WQC\,\text{int} = \frac{WQC30-day - Cbkgrnd(1 - F\,\text{int})}{F\text{int}}$	15.1 mg/kg	Whole Body 8.5 mg/kg Muscle 11.3 mg/kg
Duration		30 days	Number of days/month with an elevated concentration		Instantaneous
Frequency	Not more than once in three years	Not more than once in three years	Not more than once in three years	Not to be exceeded	Not to be exceeded

Selenium

Criteria for Intermittent Exposure

- Addresses infrequent discharges of Se
- Prevents bioaccumulation in the ecosystem
- Prevents potential chronic effects by limiting cumulative exposure

$$WQC_{int} = \frac{WQC_{30-day} - C_{bkgrnd}(1 - F_{int})}{F_{int}}$$

Where:

WQC_{int} = Average intermittent exposure Se criteria

$WQC_{30\text{-}day}$ = Chronic Se criteria

1.5 mg/L for lakes/ponds

3.1 mg/L for rivers/streams

C_{bkgrnd} = Average background Se concentration

f_{int} = Fraction of 30-day period with $f_{int} \geq 0.0333$, which corresponds to 1 day

Selenium

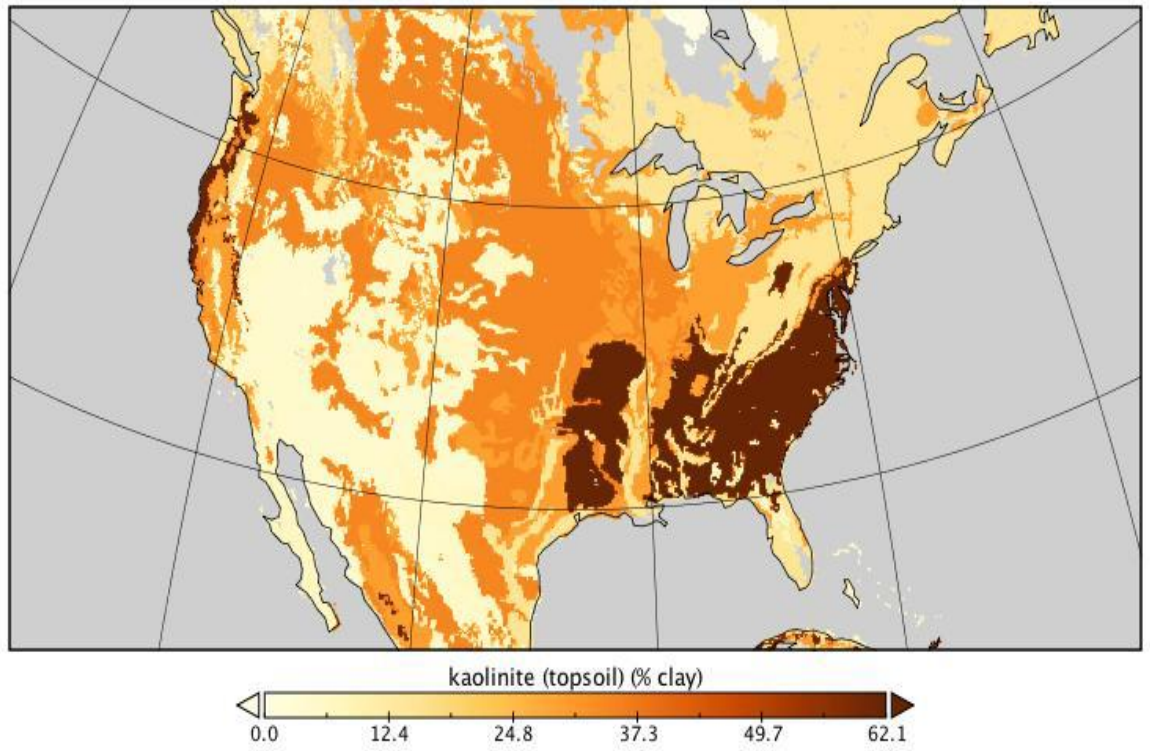
Bkgrnd Conc, C_{bkgrnd} (µg/L)	Fraction of Time, f_{int} in a 30-day period					
	0.03333 (1 day)	0.05 (1.5 days)	0.1 (3 days)	0.2 (6 days)	0.5 (15 days)	1 (30 days)
	Lotic Intermittent Criterion Element, WQC_{int} (µg/L)					
0	93	62	31	15.5	6.2	3.1
1	64	43	22	11.5	5.2	3.1
2	35	24	13	7.5	4.2	3.1
2.5	20.5	14.5	8.5	5.5	3.7	3.1
3.1	3.1	3.1	3.1	3.1	3.1	3.1
	Lentic Intermittent Criterion Element, WQC_{int} (µg/L)					
0	45	30	15	7.5	3	1.5
0.5	30.5	20.5	10.5	5.5	2.5	1.5
1	16	11	6	3.5	2	1.5
1.25	8.8	6.3	3.8	2.5	1.8	1.5
1.5	1.5	1.5	1.5	1.5	1.5	1.5

Selenium

- Looking at water column and intermittent exposure criteria
- Considering muscle fish tissue criteria
  - GA DNR Wildlife Resources Division collects fish for tissue analysis related to the development of annual fish consumption guidelines
- Selenium may reduce Mercury toxicity
  - Need more information
- EPD lab's detection limit is higher than the proposed criteria
- May not adopt proposed Se criteria at this time

Aluminum

- EPA recommended Aluminum Aquatic Life Criteria in 2018.
- Recommended Criteria are based on a Criteria Calculator dependent on site specific water hardness, pH and Dissolved Organic Carbon.
  - Dissolved Organic Carbon data is sparse (not routinely collected)
- GA has a lot of naturally occurring aluminum.
  - Kaolin is a hydrated aluminum silcate.

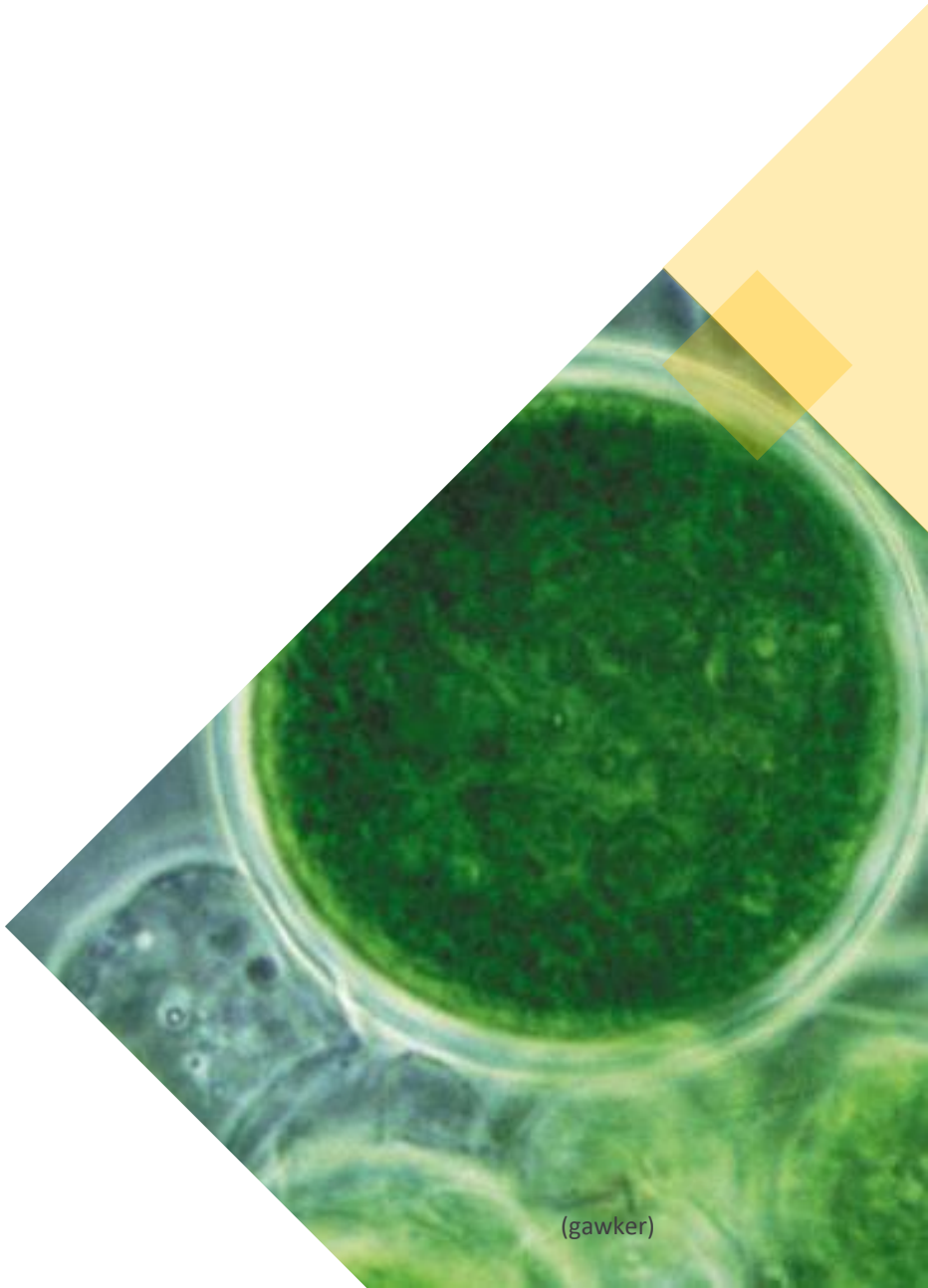


Aluminum

- Not all naturally occuring aluminum is bioavailable.
- Aluminum chemistry is complex in surface water. The toxicity is based on relationships between ambient pH, hardness and DOC.
- EPA approved test method used to analyze total aluminum using acid extraction.
  - Can result in elevated Al levels extracted from total suspended solid minerals.
  - EPA recently approved use of an alternate analytical method in Oregon rules for testing for bioavailable aluminum.
  - Waiting on EPA approval of bioavailable analytical method.
- Probably will not adopt Aluminum criteria at this time.

Cyanobacteria and Cyanotoxins

- EPA recommended criteria or swimming advisories for Cyanotoxins in 2019
- Stakeholder meetings held in August 2019 with lake managers (Georgia Power, Army Corp of Engineers, Tennessee Valley Authority, Georgia State Parks, etc), public health officials (GA Dept. of Public Health) and academic researchers (UGA and others).
- Discussed implementing swimming advisories and enlisting lake managers to implement cyanotoxin sampling in/near swimming areas following visual identification of blue-green algae event.



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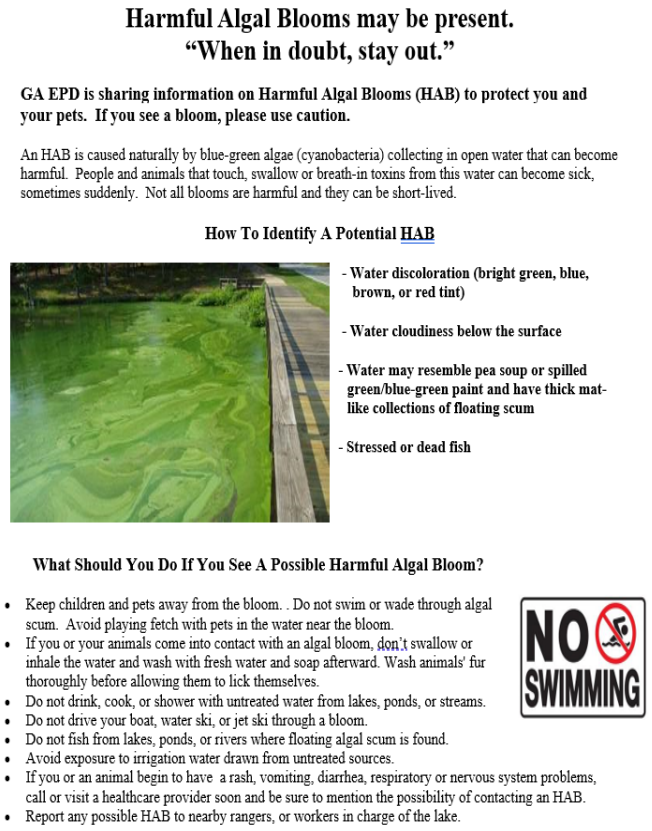
Cyanobacteria and Cyanotoxins



Harmful Algal Blooms may be present.
"When in doubt, stay out."

GA EPD is sharing information on Harmful Algal Blooms (HAB) to protect you and your pets. If you see a bloom, please use caution.

An HAB is caused naturally by blue-green algae (cyanobacteria) collecting in open water that can become harmful. People and animals that touch, swallow or breath-in toxins from this water can become sick, sometimes suddenly. Not all blooms are harmful and they can be short-lived.

How To Identify A Potential HAB

What Should You Do If You See A Possible Harmful Algal Bloom?

- Keep children and pets away from the bloom. . Do not swim or wade through algal scum. Avoid playing fetch with pets in the water near the bloom.
- If you or your animals come into contact with an algal bloom, don't swallow or inhale the water and wash with fresh water and soap afterward. Wash animals' fur thoroughly before allowing them to lick themselves.
- Do not drink, cook, or shower with untreated water from lakes, ponds, or streams.
- Do not drive your boat, water ski, or jet ski through a bloom.
- Do not fish from lakes, ponds, or rivers where floating algal scum is found.
- Avoid exposure to irrigation water drawn from untreated sources.
- If you or an animal begin to have a rash, vomiting, diarrhea, respiratory or nervous system problems, call or visit a healthcare provider soon and be sure to mention the possibility of contacting an HAB.
- Report any possible HAB to nearby rangers, or workers in charge of the lake.

- Developed an informational flyer.
- Further coordination and meetings need to happen to ensure involvement from all parties and to establish acceptable procedures for sampling and possible beach closures.
- Need to determine how to incorporate swimming advisories into our rules or listing methodology.

New or Revised Definitions

Definitions based on likelihood of water ingestion by activity.

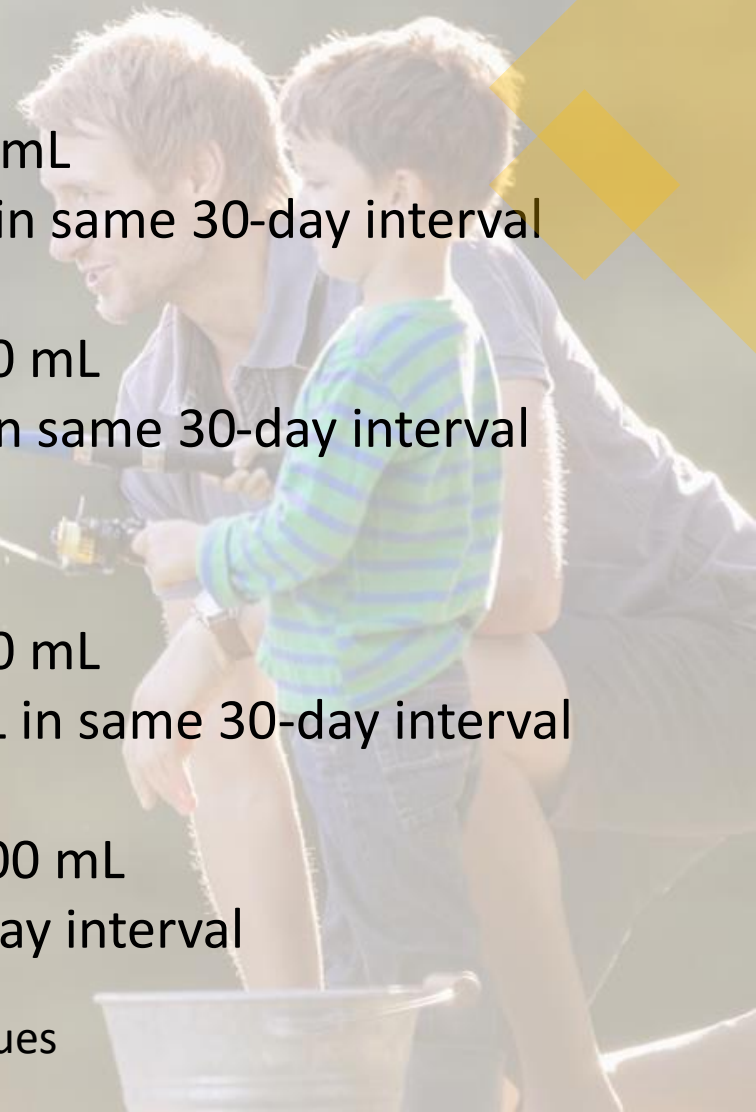
- “Primary contact recreation” is full immersion contact with water where there is significant risk of ingestion that includes, but is not limited to, swimming, diving, water skiing, white water boating, and surfing.
- “Secondary contact recreation” is incidental contact with the water not involving a significant risk of water ingestion such as canoeing, fishing, kayaking, motor boating, rowing, splashing, wading, and occasional swimming.

Fishing and Drinking Water Bacteria Criteria

- Working with EPA to develop winter bacteria criteria that will be protective of secondary contact recreation.
- Based on water ingestion rates given in 2019 update to EPA's Exposure Factors Handbook.
- Removing non-human source clause from bacteria criteria.
  - Non-human sources language was incorporated to account for the uncertainty of early epidemiological studies done downstream from POTWs and the broad group of bacteria chosen as the indicator.

Proposed Drinking Water & Fishing Bacteria Criteria

- May – October (primary contact recreation criteria):
  - Enterococci (estuarine waters):
    - Not to exceed 30-day geometric mean of 35 counts per 100 mL
    - No more than 10% excursion STV of 130 counts per 100 mL in same 30-day interval
  - E. coli (all other waters – freshwater):
    - Not to exceed 30-day geometric mean of 126 counts per 100 mL
    - No more than 10% excursion STV of 410 counts per 100mL in same 30-day interval
- November – April (secondary contact recreation criteria):
  - Enterococci (estuarine waters):
    - Not to exceed 30-day geometric mean of **98*** counts per 100 mL
    - No more than 10% excursion STV of **364*** counts per 100 mL in same 30-day interval
  - E. coli (all other waters – freshwater):
    - Not to exceed 30 day geometric mean of **353*** counts per 100 mL
    - 10% excursion STV of **1148*** counts per 100mL in same 30-day interval



* Estimated criterion; collaborating with EPA on final criteria values

Specific Criteria for Lakes Oconee and Sinclair

- Reevaluate proposed total nitrogen and pH criteria based on EPA feedback.
- Remove proposed total phosphorus (TP) criteria until TP limits have been implemented in permits.
- Once EPA has adopted criteria, NPDES permit will be issued with TP limits needed to meet Chlorophyll *a* criteria.
- Permittees will be given compliance schedules to meet TP limits, if necessary.

Other Items Being Considered for 2019 Triennial Review

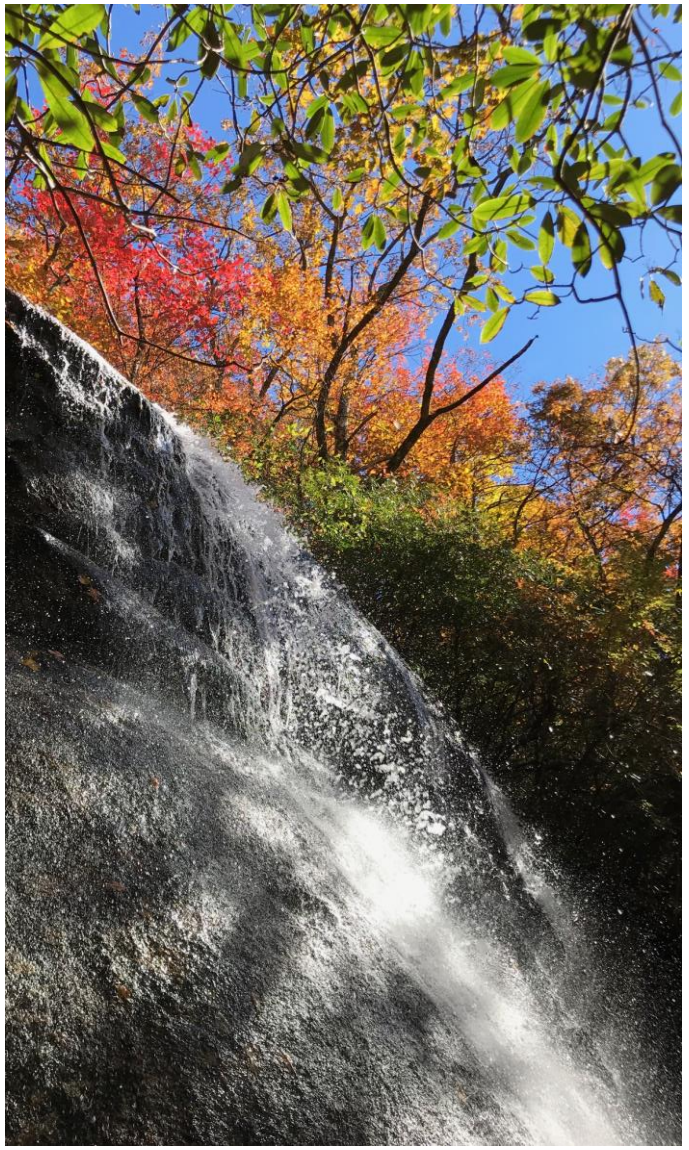
- Revise Designated Uses based on public comments received.
- Include Use of Water Effects Ratio and Biotic Ligand Model for Aquatic Life Criteria equations.
- Replace “water use classification” and “legitimate uses” with “designated uses” to align with language used in federal rules.

Waterbodies Under Consideration for Recreation Use

- Alapaha River
- Altamaha River
- Augusta Canal Water Trail
- Banks Lake
- Big Indian Creek Water Trail
- Broad River Water Trail
- Chattahoochee River
  - Peachtree Creek to New River
  - North Highlands Dam in Columbus to Bull Creek
  - Tributaries: Proctor Creek, Peachtree Creek, Tanyard Creek, Clear Creek
- Chattooga River (Coosa Basin)
- Chattooga River (Savannah Basin)
- Conasauga Canoe Trail
- Coosa River Water Trail
- Etowah River
- Flint River
- Georgia Saltwater Paddling Trail
- Grand Bay
- Ichawaynochaway Creek
- Kinchafoonee Creek
- Lake Irma
- Little Ohoopee Blue Trail
- Little River
- Muckalee Creek
- Ochlockonee River
- Ocmulgee River
- Oconee River
- Okefenokee Swamp
- Oostanaula River Water Trail
- Satilla River
- South Chickamauga Creek Blueway
- South River
- Spring Creek
- St. Mary's River
- Suwannee River
- Tallapoosa River
- Toccoa River
- Tugaloo River Water Trail
- West Chickamauga Creek Blueway
- Withlacoochee River
- Yellow River

2019 Triennial Review Timeline

- February 2, 2021: Designated Use Meeting
- February 17, 2021: Public meeting
- March-July 2021: Additional public meetings and stakeholder meetings
- Mid-August 2021: Final public meeting
- Late-August 2021: Final package due to Board
- September: propose package to Board at September Board Meeting
- September (after Board Meeting): 45-day public notice for public hearing
- Mid-November: Public Hearing
- December: Board Adoption



Comments, Contacts, and WQS Webpage

- If you would like to submit official comments for any of the materials in this presentation, please send them in an email to:

  epd.comments@dnr.ga.gov with the subject of 2019 Triennial Review

- Questions regarding Water Quality Standards and the Triennial Review Process can be sent to Gillian Gilbert-Wason at:

  Gillian.Wason@dnr.ga.gov

- The EPD webpage dedicated to Water Quality Standards can be found at: https://epd.georgia.gov/watershed-protection-branch/georgia-water-quality-standards